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ABSTRACT

What should students learn in school, and how well must they learn it? This question is the subject of intense discussion as states around the nation begin establishing high standards for student performance. In many states, educators and policymakers are turning to the business community for input on developing standards. This guide offers suggestions for business leaders who want to get involved in developing and setting educational standards in their states and communities. The guide describes six options for business involvement in establishing high academic standards; explains important terms and debates in standard-setting, as well as examples of standards; provides a historical overview of the standards movement; discusses the political issues involved; and offers examples in the form of mini-case studies of various standards from around the United States. The conclusion offers tips, drawn from the experiences of business leaders, for developing standards. The key to productive involvement is for business executives to decide how they can most effectively contribute to the standards-setting process and then determine what kinds of standards will work best in their states and communities. The report also contains lists of resources, contact information, and criteria for judging standards. (LMI)

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BUSINESS LEADER'S TO SETTING ACADEMIC STANDARDS

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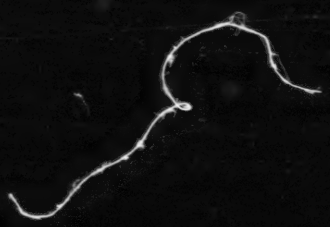

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A BUSINESS LEADER'S GUIDE TO SETTING ACADEMIC STANDARDS

The Business Roundtable

June 1996

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FOREWORD

Why is The Business Roundtable so committed to standards?

The simple answer is that we believe the first step to solving our nation's education problems is to substantially raise academic standards and verify achievement through rigorous testing.

But that explanation only begins to describe the depth of our concern and the intensity of our belief that something must be done to improve American public education. To those of us in business, it is obvious that large segments of our education system are failing today. We are the ones, after all, who get the first real-world view of the young people emerging from the American education "pipeline." Unfortunately, many of them arrive at our doors unable to write a proper paragraph, fill out simple forms, read instruction manuals, do essential mathematical calculations, understand basic scientific concepts or work as a team.

Perhaps these examples would be less disconcerting if our economy were still based on an early industrial model where hard work, a strong back and common sense could secure a decent job for even an illiterate person. But today's global, information-based economy is defined more and more by constantly evolving technology involving, for example, fiber optics, robotics, bioengineering, advanced telecommunications, microelectronics and artificial intelligence. Countries that do not lead will be more than economically disadvantaged; they will be economically irrelevant.

MORE AND MORE WE SEE THAT COMPETITION IN THE INTERNATIONAL MARKETPLACE IS IN REALITY A "BATTLE OF THE CLASSROOMS."

Standards Define Achievement

Standards are the *sine qua non* of virtually every human endeavor. Lou Gerstner, chairman and CEO of IBM and a Business Roundtable member, recently observed, "I have to confess I find the whole [issue of K-12 standards] baffling. In virtually everything else we do, we set high standards and strive to be No. 1. Why not in education? In basketball, you score when the ball goes in the hoop, not when it hits the rim. In track and field, you must jump over the bar, not go under it or around it."

The only way we can assure that the skills and abilities of our young people will keep pace with the rapidly advancing, technology-based world marketplace is by setting standards for our schools, putting in place the processes to meet those standards, and then testing to ensure that the standards are in fact being met. That is precisely what we are doing in Maryland (where Lockheed Martin is headquartered) for certain pre-high school grades — and we are already seeing that, in fact, the standards work. Other states also are beginning to see improvement.

More and more, we see that competition in the international marketplace is in reality a "battle of the classrooms."

About This Guide

How can business leaders participate constructively in setting standards? This is a question The Business Roundtable encounters more frequently with each passing day. We created this guide to help business leaders get involved — and stay involved — in setting standards in their states and

communities. The guide takes readers from rhetorical exercises to classroom reality.

As the following pages make clear, there is no single model for how business people can most effectively help set academic standards. But equally clear are some lessons learned from mistakes made by others and from their successes. Following the guidelines in this book does not ensure perfection, but it does prevent reinventing the wheel.

The guide also provides helpful background for newcomers in the educational debate. Why the need for higher standards? What do standards look like? How do they differ from state to state and community to community? What are some of the barriers to implementing standards and rigorous testing? This guide begins to answer these questions and points readers to additional resources.

There are, of course, many changes that would improve America's schools, including better discipline, more emphasis on ethical behavior, additional required core courses, greater financial recognition for teachers, greater parental choice, pre-kindergarten care, incentives to reward teaching achievement, day-to-day decision-making at the operating level (including authority to hire, fire, promote, reward and transfer), the lack of assurance of lifelong employment, and the expectation that when customer goals are not met, you go out of business.

But if we want our public education system to be truly world-class, there is no substitute for rigorous, measurable, world-class standards of performance. This is where we can truly begin to "turn around" America's public education system.

IF WE WANT OUR PUBLIC EDUCATION SYSTEM TO BE TRULY WORLD-CLASS, THERE IS NO SUBSTITUTE FOR RIGOROUS, MEASURABLE, WORLD-CLASS STANDARDS OF PERFORMANCE.

The Education Olympics

American young people compete regularly in the Olympic Games. Each one works toward the goal of being the best in the entire world. Granted, most do not reach that goal, for there can be only one "best in the world." But in the pursuit of being the best — running faster or vaulting higher or jumping farther than anyone else — each one of those thousands of athletes will attain levels of performance that they may at one time have considered impossible.

As we admire the performance of our athletes in any Olympic event, let us not forget that long after the event is consigned to the history books, we will still be competing in the education Olympics: sending our young people into the global marketplace to meet the best of the rest of the world. What takes place in the athletic arena is for pride and medals; what takes place in every neighborhood school across America determines our standard of living — it's that fundamental.

Norman Augustine

Norman R. Augustine
Vice Chairman, President and Chief Executive Officer
Lockheed Martin Corporation
and
Chairman, Education Task Force
The Business Roundtable

I INTRODUCTION

What should students learn in school, and how well must they learn it? This question is the subject of intense discussion as states around the nation begin establishing high standards for student performance. Standards are explicit statements that describe the skills and knowledge that all students must achieve and the level at which they must achieve them.

In many states, educators and policymakers are turning to the business community for input on developing standards. Business executives, in turn, have asked organizations such as ours for suggestions on how to get involved. We designed this guide to respond to their requests. It contains:

- **six proven options for business involvement in establishing high academic standards;**
- **explanations of important terms and debates in standards-setting, as well as examples of standards from around the nation;**
- **mini-case studies of how business leaders have helped set standards and what they learned from their experiences; and**
- **resources to learn more about the latest thinking on standards and other key reforms.**

Setting standards, we believe, is business leaders' most important opportunity to act on their dissatisfaction with the nation's education system.

It is our hope that business leaders will use this guide to find the best way to set high standards in their states or school districts. Setting standards, we believe, is business leaders' most important opportunity to act on their dissatisfaction with the nation's education system. We look to academic standards to end the discouraging practice of awarding diplomas to students for the number of years they attend school — rather than the achievement they demonstrate. Too many students still leave school unprepared for productive work and effective citizenship.

WHAT HAPPENS WITHOUT HIGH STANDARDS?

Ask Andre Miles, featured in a recent *Wall Street Journal* article, about the importance of high standards in education. While in high school, Andre, 22, earned B's and C's, worked part-time in a fast-food restaurant, and graduated with a strong work ethic and hopes of getting a good job. But a local manufacturer who was searching desperately for entry-level workers rejected Andre's job application. The company needed workers who could do high school trigonometry, communicate well, read blueprints and show an aptitude for operating computer equipment. As Andre noted sadly in the article, his school had not prepared him for such demanding expectations. For example, he had never taken advanced math courses.

Andre talked about his frustration in the article, saying he wished he had studied harder in high school. "If I knew then what I know now, I would have acted differently," he said. "It's frustrating that I don't even have a chance."

If high academic standards had been in place in Andre's school system for all students — not just those who planned to attend highly selective colleges — Andre might have had a different story to tell. Andre, his family and his teachers all would have known the content he was expected to learn. They all would have received early information on his progress, perhaps in fourth and eighth grades, to let them know whether or not his performance was acceptable. And prior to graduation from high school, he would have passed a challenging assessment of his knowledge and skills. His diploma would have meant more than simply sitting in school for 13 years.

Andre was unlucky. He was educated in a community that did not articulate what students would need to know to establish themselves in a high-skill economy and a democratic society. But should luck play so great a role in providing our nation's youth a reasonable chance at success in life?

II OPTIONS FOR INVOLVEMENT

As a business leader, you can help set academic standards in many different ways, depending on how far along your state is in the standards-development process. Here are some options you can pursue.

WHAT ARE THE OPTIONS?

For more on this option: ▸ See how Fort Worth, Texas, incorporated workplace skills into academic standards, page 21.

1 Outline the academic skills and knowledge that students will need to thrive in today's economy. Business leaders must underscore the need for employees with a solid background in academics — reading, writing, computing and reasoning, for example — and not a set of narrow vocational skills, which are constantly changing and can be learned on the job. In addition, employers can reinforce the importance of workplace values such as being on time, being honest and being a team player. Employers can, for example: look at a prospective hire's school attendance record; request recommendations from teachers that attest to a student's ability to work with others; and expose educators and students to high-performance work settings that reveal what kinds of conduct and thinking skills are used on the job.

For more on this option: ▸ See the materials on standards-based education reforms listed in the Resources section, page 28.

2 Insist that new standards be tied to an effective assessment system. Standards are valuable only when they are measurable, when they provide information that helps improve student achievement, and when students and teachers are held accountable to them. Even the boldest standards are meaningless without an assessment system that:

- provides data that students, teachers and administrators can use to guide their efforts to achieve high standards, and
- offers accountability for performance that can be used in deciding whether a student graduates, or to reward or sanction a school.

Because assessment serves both of these functions, designers of assessment systems wrestle with a number of issues. For example, assessments that offer a lot of information about what a student has achieved — such as a collection of best work in a portfolio — are much harder to score reliably than standardized, multiple-choice tests. These tests, however, are widely criticized because they often reveal little in-depth information about a student's skills and knowledge and may have no links to classroom learning or standards. In addition, comparative education experts note that Japan is the only country among our international competitors to rely as heavily as the United States on multiple-choice tests. Most questions on exit exams from Germany and France, for example, require students to write essays and solve complex math problems.

Another concern that assessment must address is how to recognize achievement that exceeds the minimum level required to meet a high standard. Some states

have responded to this problem by creating two levels of achievement on statewide assessments — proficient and advanced.

3 Help write academic standards in collaboration with educators. While some business executives prefer to provide oversight and leadership to the standards-setting process, other employers are more directly involved, helping draft and refine standards.

◀ **For more on this option:** See how business leaders helped draft standards in Delaware and Virginia, pages 23 and 24, as well as the debates on how standards should be organized, page 12.

4 Read and critique the academic standards being developed by your state. Make sure the standards are measurable and organized so they emphasize the skills and knowledge you believe are most essential. And check to make sure the standards are written clearly and without jargon so that everyone can understand them.

◀ **For more on this option:** See the criteria for judging standards (summarized in the appendix), as well as the profile on Washington state on page 22.

5 Benchmark the standards so they are as high — if not higher — than those of other nations, and update the standards regularly to keep pace with competing nations. The relationship of world-class standards to global economic competitiveness is a key issue that business can champion effectively, and one that might be overlooked otherwise. One way that business leaders can make the case for benchmarking is by citing studies and tests that compare American and foreign students. (Use this approach tactfully, because some educators and parents recoil at international comparisons.) In Maryland, education officials recently arranged for German and Taiwanese students to take the state's performance assessment. Both the German and Taiwanese scores were higher than the Maryland students', to the surprise of many of the assessment's critics, who said the exam asked students to demonstrate skills that were too demanding for their age levels.

◀ **For more on this option:** See how a Delaware business executive benchmarked science standards on page 23, and how Georgia business leaders pressed for a policy on benchmarking standards, page 20.

NOTE: Because benchmarking requires time and expertise, you may prefer to consult two organizations that are leading the way in comparing American standards to their counterparts abroad. One is New Standards, a group of states and large school districts developing high academic standards and new assessment systems. The other is the American Federation of Teachers (AFT). New Standards' findings on mathematics standards in France, Japan, Sweden, Australia and the Netherlands are captured in a set of 1994 reports. The AFT's Defining World Class Standards *series of publications offers translations of exit exams, curriculum materials and other documents that reveal the standards that students in other nations are reaching. Noteworthy studies that compare American students' performance to that of other nations are listed in the Resources section.*

6 Support efforts to involve the public in standards-setting and to seek public approval of the standards. Standards can be politically controversial, particularly when they are established without public input (see pages 11-13 for more on the political debates about standards). Business executives can play an important role in this debate by articulating the rationale for high standards to their communities and by making sure that standards reflect as much public input as possible — even if the standards take longer to develop as a result.

◀ **For more on this option:** See the Resources section on standards and public opinion, page 28.

WHAT ARE STANDARDS?

WORKING DEFINITIONS

"Standards" is a word with many meanings in the world of education reform. This document examines two kinds of education standards: content and performance standards.

Content standards spell out what students should know and be able to do. They describe the knowledge and skills that schools are expected to teach and students are expected to learn. Most states are well on their way to developing content standards.

Performance standards describe two things: 1) what kind of work students have to do to meet the content standards *and* 2) how well they have to do it. Some performance standards recognize more than one level of achievement — for example, satisfactory as well as advanced.

Standards versus curriculum

Standards differ from curriculum, which is a course of study and all the lesson plans, texts and learning activities included in it. Standards drive the development of curriculum, which is designed to help students achieve the standards.

Many states are meeting the first part of the definition of a performance standard, describing what students have to do to meet high standards within their content standards. (See the "performance indicators" in the Delaware content standard, page 9, for an example.) The more difficult task is part two of the definition of a performance standard — that is, describing how well a student must perform his work. While states have responded to this challenge in different ways, they all share an emphasis on using student work to show what it means to reach a high standard. A recently released, three-volume set of performance standards developed by New Standards, a partnership of 14 states and six large school districts, draws heavily on student work to answer the question, "How good is good enough?"

In some cases, states will not create performance standards and instead will develop assessments that spell out the level of performance students must meet. Many of these states will create a system for scoring tests, projects and other assessments that articulates the criteria for low, acceptable and superior achievement.

CONTENT STANDARDS

Shown here is an excerpt from a math content standard from Delaware.

STANDARD #5

Students will develop an understanding of estimation, measurement, and computation by solving problems in which there is a need to measure to a required degree of accuracy by selecting appropriate tools and units; to develop computing strategies and select appropriate methods of calculation from among mental math, paper and pencil, calculators or computers; to use estimating skills to approximate an answer and to determine the reasonableness of results.

Performance indicators:*

Through the investigation of meaningful problems, individually or in cooperative groups while using appropriate technology, all students in grades K-3 will be able to:

5.10 estimate and then measure length, perimeter, time, temperature, and weight/mass to the nearest unit using standard and non-standard units;

5.11 determine the value of a given set of coins;

5.12 measure and compute the perimeter of rectangles;

5.13 use multiple computational procedures with whole numbers;

5.14 add and subtract single-digit and multi-digit whole numbers;

5.15 multiply whole numbers using at least one single-digit divisor;

5.16 divide whole numbers using single-digit divisors;

5.17 make estimates before measuring, counting and computing;

5.18 round whole numbers and values of money as an estimation strategy;

5.19 select appropriate measures to compare objects;

5.20 compare objects through measurable attributes;

5.21 read and write decimal notation when representing money. ...

* *These indicators describe what students have to do to meet a content standard (fulfilling the first half of the definition of a performance standard) but not how well they have to do it (the second half); thus, they do not constitute a performance standard (see definitions, previous page).*

Shown here is an excerpt from a fifth-grade content standard in social studies from Charlotte-Mecklenburg, North Carolina:

GOAL: All Charlotte-Mecklenburg students will be able to ... identify basic tenets of citizenship and government . ...

Students will be able to

- Identify three branches of government in the United States and describe their legislative, executive and judicial function.
- Describe the three levels of government in the United States and list examples of authority of each (local, state and federal).
- Compare how governments in the United States, Canada and Latin America select leaders, establish laws and receive their authority.
- Explain specific changes that have taken place in government over time.
- Identify and state the significance of symbols, people and events to the development of the United States, Canada and Latin America. ...

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IV UNDERSTANDING THE DEBATES

BACKGROUND ON THE HISTORY OF STANDARDS

The nation's business, education and political leaders began pressing for high academic standards soon after the National Commission on Excellence in Education issued its 1983 report, *A Nation at Risk*, which warned of "a rising tide of mediocrity" in education.

For a more complete history: See Diane Ravitch's book and Paul Gagnon's article, listed in the Resources section, page 28.

A Nation at Risk and other reports coincided with a growing realization among business leaders that the workplace of the future would require higher and ever-advancing skills from employees.

A 1989 "Education Summit" attended by President Bush and the nation's governors in Charlottesville, Va., fueled the momentum of the bipartisan reform movement and led to the creation of the National Education Goals. The Goals called for students to master core academic subjects, spurring discussion on how to determine whether students had performed well enough.

By the late 1980s and early 1990s, leading professional and scholarly organizations had begun to develop standards for their subjects. These efforts are commonly known as national standards. While many were developed in part with funds from the U.S. Department of Education, all are voluntary. In 1994, the Goals 2000 Educate America Act provided money to states to help spur the development of voluntary standards.

Currently, 49 states have begun planning or working to create standards, sometimes known as curriculum frameworks. At an even more local level, a number

THE ROAD TO STANDARDS*

1983

The National Commission on Excellence in Education releases A Nation at Risk, calling for higher expectations and a rigorous curriculum for all students.

1987

The National Council of Teachers of Mathematics drafts mathematics curriculum standards.

1989

The president and the nation's governors hold an "education summit" and agree to create the National Education Goals.

The Business Roundtable makes a 10-year commitment to improve the performance of K-12 education.

1990

Six National Education Goals are adopted by the president and the governors.

* *Adapted from the National Education Goals Panel's Community Action Toolkit*

of school districts are developing their own standards. These districts range from big cities to rural communities — New York City to Beaufort, S.C., for example. Also, New Standards is developing performance standards in English, math, science and applied learning.

Since the publication of *A Nation at Risk* more than a decade ago, the business community has maintained its commitment to standards. Meeting with the nation's governors at a second education summit in March 1996, business leaders reaffirmed their support for a reform agenda founded on an unshakable principle — rigorous, clearly articulated academic expectations for *all* students.

THE POLITICAL DEBATE

Polls show that the public generally supports the notion of high academic standards, although standards are not universally well-received. However, debates on the issues can be useful in forging public consensus and support. Once they are in place, standards drive curriculum, teacher training and assessment, so conflicts about standards need to be confronted and resolved — and the earlier the better.

The conflicts vary

- Educators and experts disagree over what students should master in a certain subject. (For example, in English, at which grade should a student be able to write a poem? In history, should standards emphasize the achievements of great historical figures or focus on society's problems and controversies?)
- Parents sometimes object to standards that they feel force values and attitudes on their children and lack measurable academic content.

1991

President Bush introduces "America 2000," encouraging American Achievement tests and "break-the-mold" schools.

The Secretary's Commission on Achieving Necessary Skills, of the U.S. Department of Labor, details the core competencies required in the modern workplace.

1992

The National Council on Education Standards and Testing calls for voluntary national education standards and aligned systems of assessment.

The U.S. Department of Education gives grants to national organizations to develop academic standards.

1994

Goals 2000 legislation codifies eight National Education Goals and provides resources to states to support standards-based reforms.

1996

At the nation's second education summit, CEOs and governors affirm their support for rigorous state and local academic standards.

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- National standards (although they are voluntary) spark disagreements about the federal government's role in education.
- Some educators argue that high academic standards are unrealistic if schools lack funding for teacher training, acquiring technology and overcoming poverty-related social problems.
- Some parents believe that holding all students to a single set of high academic expectations will inevitably lead to a "dumbing down," or lowering of standards.

As a champion of high standards, you will have to decide whether you support your state's standards and be prepared either to revise them if they require it or to defend them from political opposition.

Standards are generally less controversial when they

- are rooted in academic content that can be assessed;
- reflect community consensus and input; and
- focus on core requirements, leaving room for schools and communities to add their own expectations.

DEBATES ON HOW STANDARDS SHOULD BE CONCEIVED, WRITTEN AND ORGANIZED

There is no magic formula for standards development, which is why states are proceeding in so many different ways. Business leaders who are involved in writing, reviewing or helping establish standards may want to consider these questions.

▸ Should standards be discipline-based or interdisciplinary?

Some standards are organized by traditional disciplines such as math, history or science. Others integrate different subjects. This issue is illustrated in the examples from Kentucky and Colorado on page 16.

KEEP IN MIND: *Standards organized by academic disciplines are most comparable to the academic expectations articulated by our international competitors.*

▸ What's more important — knowledge or skills?

Many standards documents call on students to develop extensive knowledge and fact-based understanding, while other standards emphasize skills, that is, applying knowledge, often for interdisciplinary purposes such as critical thinking and problem-solving. For a look at how this debate took shape in one state, see the Virginia profile, page 24.

KEEP IN MIND: *Almost all experts recommend balancing knowledge and skills, so that one is not achieved at the expense of the other. However, there is widespread disagreement on just how to strike the right balance.*

▸ Should standards focus on core skills and knowledge or be more comprehensive?

Core standards describe only the essential elements of an academic discipline, while comprehensive standards attempt to cover the entire discipline. National

standards, in particular, have tended to be comprehensive, sometimes running hundreds of pages and including sample student work, classroom activities and the rationales behind each standard.

KEEP IN MIND: *Opponents argue that comprehensive standards leave little room for local districts or schools to add their own, more specific requirements. Another criticism is that comprehensive standards are so voluminous that they cannot be fit into the existing school day or year. Meanwhile, some experts say that core standards are too minimal to reflect the depth of skills and knowledge required in a discipline.*

Should standards be specific or general?

Specific standards offer precise descriptions of what is expected (such as using correct grammar, for example), while general, more broadly written standards leave more room for interpretation (such as writing in different formats for different audiences).

KEEP IN MIND: *Experts debate whether standards should be so specific, and possibly prescriptive, that they practically form a curriculum or whether they should consist of more general statements that provide inspiration and guidance to local educators. State leaders who have developed spare, general standards (often known as learning goals) typically flesh out their standards in curriculum frameworks or guidelines. Specific standards are more easily assessed than general standards.*

What grade intervals should be used to organize standards?

A number of states set standards for each subject in each grade. Others have been organized into standards for three critical levels — elementary, middle and high school. Still others are expressed as expectations for graduating seniors — they cover the entire K-12 educational experience.

KEEP IN MIND: *Standards organized for each grade tend to be more specific than those that cover a few to several years at a time.*

Are non-academic standards appropriate?

Some standards delve into personal conduct and civic responsibility, calling for students to be good citizens, make healthy choices and acquire self-esteem, for example.

KEEP IN MIND: *Standards that are focused on personal conduct or beliefs have been widely criticized. Many complain these standards cannot be assessed and distract students from serious academic learning, while others object to what they see as the imposition of attitudes, behavior, ideology and in some cases, "political correctness."*

How can you incorporate workplace skills into academic standards?

Whether included in standards or not, workplace skills and work values are vital to the business community. Employers should emphasize their importance to educators. Communicating well and using technology are some of the workplace skills that states are incorporating into their content standards.

KEEP IN MIND: *Certain workplace skills (such as teamwork) and work values (such as honesty and work ethic) are very difficult to assess, prompting experts to question whether they belong in academic standards. States and districts are responding to this issue in different ways. In some cases, workplace skills are incorporated into traditional academic standards such as math and English. In other cases, workplace skills are developed alongside academic standards.*

V TAKING A LOOK AT STANDARDS

HOW VARIED ARE THE APPROACHES?

The following excerpts from standards around the nation are intended to acquaint you with the stark contrasts among standards and to help you develop your own preferences. Also included are examples of poorly conceived standards that have been rejected and revised (page 19) and assessments from competing nations (page 17).

EXAMPLES FROM VIRGINIA AND DELAWARE

Virginia and Delaware approach the same standard — writing — quite differently. Virginia's standards focus on grammar and basic writing principles such as organization and coherence, while the Delaware standards emphasize the different forms and purposes of writing, including writing as a means of self-revelation and reflection. The Virginia standards are organized by grade, while Delaware's English requirements cover both fourth and fifth grade.

Virginia's English standards are divided into four intersecting areas:

- *oral language*
- *reading/literature*
- *writing*
- *research*

VIRGINIA STANDARD, WRITING/ENGLISH, FOURTH AND FIFTH GRADES

FOURTH GRADE

4.7 The student will write effective narratives and explanations.

- Focus on one aspect of a topic.
- Develop a plan for writing.
- Organize writing to convey a central idea.
- Write several related paragraphs on the same topic.
- Utilize elements of style, including word choice, tone, voice, and sentence variation.
- Edit final copies for grammar, capitalization, punctuation, and spelling.
- Use available technology.

4.8 The student will edit final copies of writings.

- Use subject-verb agreement.
- Avoid double negatives.
- Use pronoun "I" correctly in compound subjects.
- Use commas in series, dates, and addresses.

FIFTH GRADE

5.7 The student will write for a variety of purposes to describe, to inform, to entertain, and to explain.

- Choose planning strategies for various writing purposes.
- Organize information.
- Use vocabulary effectively.
- Vary sentence structure.
- Revise writing for clarity.
- Edit final copies for grammar, capitalization, spelling, and punctuation, especially the use of possessives and quotation marks.

examples continued on next page

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continued

EXAMPLES FROM VIRGINIA AND DELAWARE

DELAWARE ENGLISH STANDARDS, WRITING, FOURTH AND FIFTH GRADES

- Use written and oral English appropriate for various purposes and audiences.
- Construct, examine and extend the meaning of literary, informative and technical texts through listening, reading and viewing.
- Access, organize and evaluate information gained through listening, reading and viewing.
- Use literary knowledge accessed through print and visual media to connect self to society and culture.

STANDARD #1

Performance Indicators: Written Communication

Writers will produce examples that illustrate the following discourse classifications:

By the completion of Grade 5, students will be able to write

1. expressive (author-oriented) texts both personal and literary, that
   a. reveal self-discovery and reflection;
   b. demonstrate experimentation with techniques which could include dialogue;
   c. demonstrate experimentation with appropriate modes which could include narration and description;
   d. demonstrate experimentation with rhetorical forms.
2. informative (subject-oriented) texts that
   a. address the needs of the audience;
   b. exhibit appropriate modes which could include description, narration, classification, simple process analysis, and definition;
   c. conform to the appropriate formats, which could include letters, summaries, messages, and reports;
   d. contain information from primary and secondary sources, avoiding plagiarism.
3. argumentative and persuasive (audience-oriented) texts that
   a. address the needs of the audience;
   b. communicate a clear-cut position on an issue;
   c. support the position with relevant information, which could include personal and expert opinions and examples;
   d. exhibit evidence of reasoning.

EXAMPLES FROM KENTUCKY AND COLORADO

These two excerpts illustrate the discipline vs. interdisciplinary debate, as well as the different approaches on organization of standards by grade.

Kentucky standards, expressed as exit outcomes for graduating high school students, are composed of six interdisciplinary skills. Called Learning Goals, the standards incorporate science, math and other traditional academic areas. Kentucky's standards also call for students to use their skills and knowledge outside the classroom. Shown is an excerpt from Learning Goal 2.

The Colorado excerpt reflects state policymakers' support for standards that are based on a single discipline. In contrast to Kentucky, the Colorado standards are organized according to grade clusters at the elementary, middle and high school levels.

KENTUCKY LEARNING GOALS

GOAL 2:
Students shall develop their abilities to apply core concepts and principles from mathematics, the sciences, the arts, the humanities, social studies, practical living studies, and vocational studies to what they will encounter throughout their lives.

Science

2.1 Students understand scientific ways of thinking and working and use those methods to solve real-life problems.

2.2 Students identify, analyze, and use patterns such as cycles and trends to understand past and present events and predict possible future events.

2.3 Students identify and analyze systems and the ways their components work together or affect each other. ...

Mathematics

2.7 Students understand number concepts and use numbers appropriately and accurately.

2.8 Students understand various mathematical procedures and use them appropriately and accurately.

2.9 Students understand space and dimensionality concepts and use them appropriately and accurately.

2.10 Students understand measurement concepts and use measurements appropriately and accurately. ...

Social Studies

2.14 Students understand the democratic principles of justice, equality, responsibility, and freedom and apply them to real-life situations.

2.15 Students can accurately describe various forms of government and analyze issues that relate to the rights and responsibilities of citizens in a democracy. ...

COLORADO GEOGRAPHY STANDARD

STANDARD 3:
Students understand how physical processes shape Earth's surface patterns and systems. ...

3.1 Students know the physical processes that shape Earth's surface patterns.

GRADES K-4
In grades K-4, what students know and are able to do includes

- identifying the components of Earth's physical systems and their characteristics (for example, air, land, water, plants, and animals and their features);
- explaining how Earth-Sun relationships shape climate and vegetation patterns (for example, as compared with other regions, polar regions receive low amounts of sun's energy and thus support little vegetation); and ...

GRADES 5-8
As students in grades 5-8 extend their knowledge, what they know and are able to do includes

- describing how physical processes shape environmental patterns of air, land, water, plants, and animals;
- explaining how physical processes influence the formation and location of resources. ...

GRADES 9-12
As students in grades 9-12 extend their knowledge, what they know and are able to do includes

- identifying the dynamics of the four basic components of Earth's physical systems: the atmosphere, biosphere, lithosphere, and hydrosphere;
- explaining the interaction of Earth's physical systems (for example, the interaction of climate and ocean water as exemplified by El Niño). ...

EXAMPLE FROM VERMONT

Vermont's Personal Development Standards and Civic/Societal Responsibility Standards call on students to:

- Make healthy choices.
- Make informed decisions.
- Develop productive and satisfying relationships with others.
- Demonstrate the skills necessary to participate in the workplace.
- Learn by serving others and participate in the democratic process.
- Respect and value human diversity as part of our multicultural society and world.

This excerpt illustrates how students can show evidence of meeting the standard, "Students make healthy choices." In some states, non-academic standards such as this example have come under attack for focusing unduly on behavior, attitude or ideology. Vermont policymakers point out that these standards reflect widespread community input generated by a series of community meetings to discuss what young people need to know to succeed in the 21st century.

PERSONAL DEVELOPMENT STANDARDS
Make healthy choices.

Development Standard #2.1: Students identify the indicators of intellectual, physical, social, and emotional health for their age/stage of development. . . .

a2. describe how lifestyle, pathogens, family history, and other risk factors are related to the cause or prevention of disease and other health problems;

c2. explain the relationship between positive health behaviors and prevention of injury, disease, and premature death, and develop a personal plan for health;

d2. demonstrate the ability to utilize resources from the home, school, and community to provide valid health information;

f2. demonstrate use of strategies to manage stress;

g2. demonstrate refusal and negotiation skills to enhance health; and

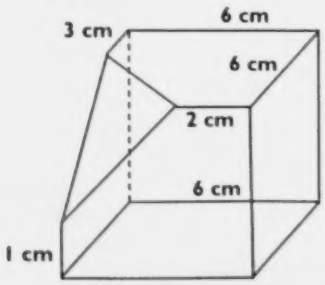
h2. demonstrate how to choose a menu that includes five or more daily servings of fruits, vegetables, and legumes, and six or more daily servings of grain. . . .

EXAMPLES OF ASSESSMENTS FROM OTHER COUNTRIES

An assessment can quickly reveal the rigor of the standard it is asking students to meet. Here are two excerpts from assessments used in Japan and France.

VOLUME OF A SOLID

The diagram below shows a geometric solid formed by cutting a corner of a cube with a plane. Find the volume of this solid.



— Japan, seventh-grade math question

CAUSES OF THE FIRST WORLD WAR

First explain the indirect causes (imperialism and nationalism) which facilitated the appearance of European networks of alliances. Briefly describe these networks. Next tell how the crisis at Sarajevo is directly responsible for the First World War.

[Organize your answer with an introduction, then a developed text, then edit your conclusion, which will be evaluated when your answer is corrected.]

— France, ninth grade, Brevet exam

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EXAMPLE FROM MARYLAND

Maryland's Skills for Success focuses on what students need to know and be able to do to succeed in the workplace. Five skills will be incorporated into academic standards:

- Learning skills
- Thinking skills
- Communication skills
- Technology skills
- Interpersonal skills

GOAL 4 - TECHNOLOGY SKILLS
The student will understand, apply, and evaluate technologies as labor-enhancing and problem-solving tools. ...

1. Expectation: The student will demonstrate knowledge of current technologies appropriate for a variety of purposes and situations.

   B. Instructional Indicators

   1. The student will identify and use resources and procedures for keeping abreast of advances in technology.

   2. The student will identify appropriate and current technologies for accessing and managing information, communicating, performing work, and solving problems in a variety of situations. ...

EXAMPLES OF NEW STANDARDS' APPLIED LEARNING STANDARDS

New Standards has developed standards for applied learning for elementary students that ask students to apply their knowledge and demonstrate it in hands-on learning activities such as long-term group projects.

1. Problem solving
2. Communication tools and techniques
3. Information technology tools and technologies
4. Learning and self-management tools and techniques
5. Tools and techniques for working with others ...

...5. TOOLS AND TECHNIQUES FOR WORKING WITH OTHERS
Work with others to achieve a shared goal, to promote on-the-job learning and to respond effectively to the needs of a client.

The student works with others to complete a task; that is, the student

- reaches agreement with group members on what work needs to be done to complete the task and how the work will be tackled;
- takes a share of the responsibility for the work;
- consults with group members regularly during the task to check on progress completing the task, to decide on any changes that are required, and to check that all parts have been completed at the end of the task.

Examples of working with others to complete a task include:

- working on the production of a weekly school news service ...
- sharing responsibility for collecting information from a weather station and preparing daily reports ...
- organizing a storytelling conference. ...

EXAMPLES OF INEFFECTUAL, UNCLEAR OR POORLY WRITTEN STANDARDS

The following selections of standards are cited by the American Federation of Teachers (AFT) as examples of what to avoid. The AFT criticizes these standards for being confusing, not academic enough and overly focused on skills at the expense of knowledge. (The AFT's criteria for judging standards, along with two other sets of guidance on evaluating standards, are summarized in the appendix.) Note: Many of the standards below met objections from members of the public and business community and were rewritten as a result.

"Students will demonstrate the ability to examine problems and proposed solutions from multiple perspectives." (Missouri's Standards, Draft 1995)

"[A high school graduate] understands and describes ways that a specified culture shapes patterns of interaction of individuals and groups." (Minnesota's High School Standards, Draft 1994)

"While performing individual and group tasks, students organize and intellectually process symbols, pictures, objects and information in a way which permits the mind to generate the reality of what is being represented." (Florida's Blueprint 2000, 1992)

"... A student will demonstrate the ability to think critically, creatively and reflectively in making decisions and solving problems." (Oregon's Certificate of Initial Mastery, 1991)

"All students demonstrate caregiving skills and evaluate, in all settings, appropriate child care practices necessary to nurture children based on child development theory." (Pennsylvania's Student Learning Outcomes, Draft 1991)

Source: American Federation of Teachers

VI BUSINESS TAKES ACTION

The following profiles describe how business leaders have successfully participated in setting standards.

Georgia: Leadership and oversight

Gary Lee, director of the United Parcel Service (UPS) Foundation, and John Varner, assistant to the vice president at Georgia Power, worked with the Georgia Chamber of Commerce to develop clear, concise recommendations on the state's seven-year-old standards. To reach as broad a consensus as possible, the two men met continually with educators and employers, and they worked to better understand public opinion, incorporating findings from a study of Georgians' views on school improvement into their recommendations.

The recommendations call for the current standards to be strengthened so that they are rigorous, grounded in basic knowledge and advanced skills, internationally benchmarked and tied to a more effective assessment system.

"My role in standards and assessment was more as a facilitator, getting together educators, business leaders, superintendents and parent representatives and talking about how we can improve education so kids can compete in the 21st century."

— Gary Lee
Director, UPS Foundation

Both Lee and Varner believe they had an important role to play in helping set high standards, but their approach was to provide leadership rather than comb through standards line by line and attempt to rewrite them. They believe that job belongs to educators.

"It's fallacious to give a business person a math standard for third grade and say, 'Tell me what you think'," according to Lee. Instead, he says, "My role in standards and assessment was more as a facilitator, getting together educators, business leaders, superintendents and parent representatives and talking about how we can improve education so kids can compete in the 21st century."

Lee was particularly concerned about making recommendations that acknowledge the connection between standards and other key reforms, in particular, assessment and curriculum. Varner, awed by the level of achievement demanded of high school students on German exams such as the Abitur, was surprised that he and fellow business leaders had to insist on making the standards world-class. He urges other employers to remind their communities that U.S.-

based companies can find skilled workers for everything from manufacturing to software development overseas, adding that companies increasingly decide where to locate their operations both in the United States and abroad on the basis of workforce quality and the performance of local school systems.

Fort Worth, Texas: Incorporating workplace skills into academic standards

In Fort Worth, Texas, the business community participated in an exhaustive analysis of job skills that resulted in more rigorous academic standards in the classroom. The project began in 1991, when some 300 companies analyzed the tasks and knowledge needed for 900 different jobs.

In one example, researchers found that at a telephone company, an entry-level job such as putting telephone poles in the ground requires mastery of geometry.

The job analysis generated a wealth of knowledge that has already influenced classroom practice. For example, the study found that 72 percent of all the jobs surveyed required a high level of math to be successful. As a result, more students now are required to take advanced math classes, according to Fort Worth Schools Community Liaison Debby Russell.

"We had to go back and delete low-level math. Now, every ninth-grader takes algebra. That way students can go on to take geometry or trigonometry," Russell says.

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— Debby Russell
Fort Worth Schools
Community Liaison

The job analysis also pinpointed which jobs required strong writing skills and for what purposes. It is now common for students in a Fort Worth English class to write a sample personnel evaluation in addition to writing an essay on Shakespeare. These kinds of assignments have the effect of motivating students by showing them the importance of academic skills in the real world.

In addition to making school more rigorous and relevant, the information generated by the business community's jobs analysis was incorporated into the performance standards of the New Standards organization, in which Fort Worth is a partner district.

Washington: Eliminating jargon

Business leaders are well-positioned to point out when standards are incomprehensible to the non-education expert and to insist on clarity. In Washington state, business leaders complained that the standards were hard to understand. Charles Collins, chairman of the commission charged with developing the standards and a business executive himself, agreed.

As a result, the commission revised the standards, making sure they were written in plain English. The process taught Collins about the conflict that results from trying to communicate the complex ideas that underlie standards to a general audience. He also discovered that "sometimes educators feel that simplifying their work to make it easier to understand means devaluing them as a profession."

MAKEOVER: BEFORE AND AFTER

Here is a draft standard for reading in Washington state that was rewritten after business leaders and others complained it was difficult to understand. The revised version uses clearer language, for example, omitting the phrase, "construct meaning," which is education jargon.

WASHINGTON STANDARD, BEFORE REVISIONS

ESSENTIAL LEARNINGS: READING

2. The student reads to construct meaning from a variety of texts for a variety of purposes.
   - comprehends important ideas and details
   - analyzes and synthesizes
   - thinks critically
   - reads to learn new information
   - accesses information to solve problems and perform tasks

WASHINGTON STANDARD, AFTER REVISIONS

2. The student understands the meaning of what is read. In order to meet this standard, the student will:
   - comprehend important ideas and details
   - expand comprehension by analyzing, interpreting, and synthesizing of information and ideas
   - think critically about authors' use of language and style, purpose, and perspective, and know how to apply ideas to new situations

Delaware: Drafting science standards

DuPont Senior Vice President and Chief Technology Officer Joe Miller recently co-chaired the committee that wrote Delaware's science standards. Miller describes the steps taken by his committee, which he co-chaired with a Delaware teacher:

- The committee first set goals based on where they wanted Delaware to be 15 years from now. Their objective: to be the best in the world. Miller obtained both Japanese and British education standards for comparison.
- The committee broke into teams for different science areas (life, physical and earth).
- Teacher involvement and ownership were considered essential. Miller's committee distributed the first science standard they wrote (Materials & Their Properties) to teachers at the 301 participating schools for review. After making revisions, the group used this standard as a template for the other standards, always incorporating a review and adjustment process.
- The group narrowed the writing of standards to two people (the co-chairs).
- Committee members solicited comment from universities, representatives of small and large businesses, unions and engineers.
- Miller also sought feedback from advisory groups such as those developing the national science standards.

Miller has tips and observations to pass on to other business representatives who embark on standards development. First, he says, the process is time consuming. Miller spent two and a half years on the science standards, often meeting on weekends and evenings. Miller also emphasizes the importance of teacher involvement in the process, saying he worked to earn educators' trust and respect. He recommends that companies assign a high-level employee to standards efforts to show how seriously business leaders view education reform.

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Miller suggests that business leaders become knowledgeable about their subjects; in his case, he read *Science for All Americans*, the standards developed by the American Association for the Advancement of Science, before he began his work.

Virginia: Reconciling two different approaches

Serving on the Virginia Board of Education, Alan Wurtzel, vice chairman of Circuit City, found himself in the middle of the knowledge vs. skills debate (please see page 12 for more on this).

Wurtzel attempted to navigate between the two approaches. He looked for what he calls "a healthy dose of 60-80 percent emphasis on mastering basic curricular material, whether it's multiplication tables, solving an algebra problem, reading decent books, knowing the protagonist and the antagonist, etc."

The other 20-40 percent, in Wurtzel's view, should focus on interdisciplinary skills such as integrating information and solving problems. Wurtzel is pleased with the balance struck by Virginia, which meets many of the American Federation of Teachers (AFT) criteria for good standards, in particular, the AFT preference for academic standards organized by traditional subject matter for each grade (see page 31 for the AFT criteria).

MAKEOVER: VIRGINIA HISTORY STANDARDS, BEFORE AND AFTER

Alan Wurtzel believes the most recently approved Virginia standards (1995) offer a sound combination of knowledge and skills. These new history standards excerpts are more specific and rigorous than the 1989 version, and they include what Wurtzel calls "thinking skills" that demand analytical abilities.

1989

The student will explain how scientific and technological changes have made major impacts on society.

Descriptive Statement: Emphasis will be placed on analyzing the conditions existing before and after particular scientific or technological changes in order to evaluate the effect on lifestyles and institutions.

1995
NINTH GRADE

9.9 The student will analyze and explain the effects of the Industrial Revolution, in terms of

- the rise of industrial economies and their link to imperialism and colonialism;
- how scientific and technological changes, including the inventions of Watt, Bessemer, and Whitney, brought about massive social and cultural change ...

Thinking Skills: In every grade, students are required to develop and improve skills in historical research, geographic and economic analysis. For example:

FOURTH GRADE

4.7 The student will develop historical analysis skills including

- identifying, analyzing, and making generalizations about the life in Virginia history using primary sources including artifacts, diaries, letters, photographs, art, documents, and newspapers;
- distinguishing fact from fiction by comparing documentary sources on historical figures and events with fictionalized characters and events ...

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VII CONCLUSION

"Standards must be in place ... quickly."

The need for high academic standards remains the undisputed starting point for a host of crucial education reforms. The nation's governors and top CEOs renewed their commitment to standards-based reforms at the March 1996 National Education Summit. In a closing statement, they urged the nation to recognize that, "... Without a clear articulation of the skills needed, specific agreement on the academic content students should be learning, clear goals for what needs to be accomplished, and authentic and accurate systems to tell us how well schools and students are doing, efforts to improve our schools will lack direction." In short, "... Standards must be in place in all of our schools and must be in place quickly."

Business leaders are proving how effective they can be in pressing for standards. They are providing oversight and leadership to the process, seeking public input on standards, benchmarking against the world's best standards and, in some cases, drafting the standards themselves. The key to productive involvement is for business executives to decide how they can most effectively contribute to the standards-setting process and then determine what kinds of standards will work best in their states and communities.

TIPS ON DEVELOPING STANDARDS

The following list is a compilation of tips drawn from the experiences of business leaders interviewed for this guide:

- **If you're helping set standards policy**
  - Insist that standards be tied to more effective assessment.
  - Make sure that standards are world-class.
  - Let educators know what skills and knowledge businesses expect of employees at both entry-level and advanced positions.
  - Recognize that standards will need to change, and help educators understand the constantly evolving needs of the workplace.
  - Set up a process to obtain public input into the standards.
  - Ensure that students, schools and teachers who meet high standards are rewarded for their accomplishments and perseverance, and that there are consequences for falling short of high standards.
- **If you're helping write standards**
  - Read the best international, national, state and local standards (or, in countries where standards are not available, read curriculum and exams) to compare and benchmark.
  - Borrow any good ideas regarding language, format or organization from other standards documents.

- Insist on clear language that is understandable to the general public.
- Be wary of standards that focus too much on personal values and conduct.
- Write standards that focus on essential requirements so that local communities — teachers, parents and others — can add their own expectations.

If you're reviewing standards

- Make sure the standards are measurable.
- Show standards to supervisors of front-line, entry-level workers in your company to get their input on whether the requirements would help prepare students to be successful on the job.
- Show standards to someone in your company with expertise on the subject. For example, the chemist at your plant should look at the chemistry section of the science standards.
- Analyze the standards to see if they stress skills at the expense of knowledge and vice versa.
- Consider using the criteria developed by national education organizations (and summarized in the appendix).

JUST THE BEGINNING

Business leaders understand that many changes are necessary to reform the American school system, but they also know that standards are the starting point for all other reforms. The Business Roundtable has detailed its vision for reform in a nine-point agenda that includes standards, assessment, accountability, school autonomy, professional development, parent involvement, learning readiness, technology, and safety and discipline.

All of these reforms are crucial, and all are connected to standards. When linked with rigorous assessment and an accountability system, standards fuel a long-term, broad-based reform effort, driving decisions about how to invest wisely in everything from teacher training to technology in the classroom.

As challenging as it is to establish high academic standards, it is equally demanding work to bring the standards to life. Students, teachers and parents will face the daily challenge of turning the standards from words on a page into cherished, hard-won achievements. The transformation of standards from rhetoric to reality does not occur by decree from above. Instead, school staffs, parents and students must adopt, adapt and take ownership of their standards, and they must believe them to be worth striving for.

Nine-point Agenda

***The Business Roundtable has detailed its vision for reform in a nine-point agenda that includes standards, assessment, accountability, school autonomy, professional development, parent involvement, learning readiness, technology, and safety and discipline. The Business Roundtable's agenda is described in a booklet called* Continuing the Commitment: Essential Components of a Successful Education System.**

VIII RESOURCES

PUBLIC OPINION ABOUT STANDARDS

Assignment Incomplete, First Things First and *Americans' Views on Standards.* Explorations of the public's outlook on education reform. Public Agenda, 6 East 39th St., New York, NY 10016. Tel: 212-686-6610.

Effective Public Engagement. Public opinion on high standards and guidance on how to talk to communities about standards-based education reform. Public Agenda (address above) and New Standards, c/o the National Center on Education and the Economy, 700 11th St., NW, Suite 750, Washington, DC 20005. Tel: 202-783-3668.

MATERIALS ON JUDGING STANDARDS

The Challenge of Change: Standards to Make Education Work for All Our Children. The National Alliance of Business, 1201 New York Ave., NW, Suite 700, Washington, DC 20005-3917. Tel: 202-289-2888.

Judging Standards in Education Reform. Council for Basic Education, 1319 F St., NW, Suite 900, Washington, DC 20004-1152. Tel: 202-347-4171.

Setting Strong Standards: The AFT's Criteria for Judging the Quality and Usefulness of Student Achievement Standards. The American Federation of Teachers, 555 New Jersey Ave., NW, Washington, DC 20001-2079. The AFT also offers a series of *Setting World-Class Standards Kits,* which include the AFT criteria for high-quality standards, translated standards and exams from abroad and examples of national, state and local materials. Kits available for English language arts, history, civics, geography, mathematics, science/biology and others.

See appendix for summaries.

BACKGROUND ON STANDARDS AND EDUCATION REFORM

America's Choice: High skills or low wages! The Commission on the Skills of the American Workforce, c/o 30 State St., Suite 500, Rochester, NY 14714. Tel: 716-546-7620.

Closing the Gap Between Knowing and Doing: Job Skill Requirements for Entry-Level Workers. The Business Coalition for Education Reform, c/o the National Alliance of Business, 1201 New York Ave., NW, Suite 700, Washington, DC 20005-3917. Tel: 202-289-2888.

Continuing the Commitment: Essential Components of a Successful Education System. The Business Roundtable, 1615 L St., NW, Suite 1100, Washington, DC 20036.

Debating the Future of American Education and *National Standards in American Education: A Citizen's Guide,* by Diane Ravitch. The Brookings Institution, 1775 Massachusetts Ave., NW, Washington, DC 20036. Tel: 800-275-1447.

Developing Educational Standards, a Web site, featuring many state standards. http://www.putwest.boces.org/Standards.html

Front-End Alignment: A Manual for Developing Standards. The Education Trust, One Dupont Circle, NW, Suite 360, Washington, DC 20036.

Goal Line, an on-line network subscriber service sponsored by the Coalition for *Goals 2000.* www.Connect@goaline2000. Tel: 202-835-2000.

High Academic Standards and School Reform: Education Leaders Speak Out, by Sue Lehmann. Commissioned by IBM for the 1996 National Education Summit, Old Orchard Road, Armonk, NY 10504.

Lehmann also compiled an annotated bibliography of all books, brochures, monographs and any other documents on standards submitted to IBM for the summit.

Making Standards Matter: A Fifty-State Progress Report on Efforts to Raise Academic Standards. The American Federation of Teachers, 555 New Jersey Ave., NW, Washington, DC 20001-2079.

Measuring Up: Standards, Assessment and School Reform, by Robert Rothman. Jossey-Bass Publishers, 350 Sansome St., San Francisco, CA 94104.

Promises to Keep: Creating High Standards for American Students, National Education Goals Panel, 1850 M St., NW, Suite 270, Washington, DC 20036.

Standards Mean Business, an examination of the importance of academic standards to business. The National Alliance of Business, 1201 New York Ave., NW, Washington, DC 20005. Tel: 202-289-2888.

Struggling for Standards, a special section in the April 12, 1995 edition of *Education Week.* Editorial Projects in Education Inc., 4301 Connecticut Ave., NW, Suite 250, Washington, DC 20008.

"What should children learn?" by Paul Gagnon in the December 1995 issue of *The Atlantic Monthly,* 745 Boylston St., Boston, MA 02216. Tel: 617-536-9500.

NATIONAL STANDARDS DEVELOPERS

Arts

Consortium of National Arts Education Associations, based at the Music Educators National Conference, 1806 Robert Fulton Dr., Reston, VA 22091. Tel: 703-860-4000.

Civics

Center for Civic Education, 5146 Douglas Fir Rd., Calabasas, CA 91302-1467. Tel: 818-591-9321.

English

International Reading Association, 800 Barksdale Rd., PO Box 8139, Newark, DE 19714-8139. Tel: 302-731-1600.

National Council of Teachers of English, 1111 N. Kenyan Rd., Urbana, IL 61801-1096. Tel: 217-328-3870.

Foreign languages

American Council on the Teaching of Foreign Languages, Six Executive Plaza, Yonkers, NY 10701-6801. Tel: 914-963-8830 or 800-627-0629.

Geography

National Geographic Society, 1145 17th St. NW, Washington, DC 20036-4688. Tel: 202-775-6701.

Health

Association for the Advancement of Health Education, 1900 Association Dr., Reston, VA 22091. Tel: 703-476-3441.

History

National Center for History in the Schools, 1100 Glendon Ave., Suite 927, Box 951588, Los Angeles, CA 90095-1588. Tel: 310-206-6093.

Mathematics

National Council of Teachers of Mathematics, 1906 Association Dr., Reston, VA 22091-1593. Tel: 703-620-9840.

Physical education

National Association for Sports and Physical Education, 1900 Association Dr., Reston, VA 22091. Tel: 703-476-3461 or 800-321-0789.

Science

American Association for the Advancement of Science, 1333 H St., NW, Washington, DC 20005. Tel: 202-326-6666.

National Academy of Sciences, 2101 Constitution Ave., NW, Box 285, Washington, DC 20055. Tel: 800-624-6242.

Social studies

National Council for the Social Studies, 3501 Newark St., NW, Washington, DC. 20016. Tel: 202-966-7840.

OTHER STANDARDS DEVELOPERS

The Edison Project, 520 Fifth Ave., 12th floor, New York, NY 10017. Tel: 212-309-1600. Edison's student standards are for a variety of subjects at the elementary, middle and high school levels.

New Standards, c/o the National Center on Education and the Economy, 700 11th St., NW, Suite 750, Washington, DC 20005. Tel: 202-783-3668. The New Standards "Consultation Drafts" contain a set of performance standards in English language arts, mathematics, science and applied learning at elementary, middle and high school levels.

INTERNATIONAL STANDARDS AND BENCHMARKING

Learning Mathematics and Learning Science, a set of international student comparisons in math and science. The International Assessment of Educational Progress, c/o of the Education Testing Service, Rosedale Rd., Princeton, NJ 08541-6710. Tel: 800-223-0267.

Mathematics and Science Curriculum and Standards, an International Comparison, The U.S. National Research Center for the Third International Mathematics and Science Study, Michigan Sate University, 464 Erickson Hall, East Lansing, MI 48824. Tel: 517-353-7755.

New Standards' report on mathematics in five nations. New Standards, c/o the National Center on Education and the Economy, 700 11th St., NW, Suite 750, Washington, DC 20005. Tel: 202-783-3668.

Defining World Class Standards, a series of volumes focusing on the academic performance expected of students in other nations. American Federation of Teachers, 555 New Jersey Ave., NW, Washington, DC 20001-2079.

Performance Assessment: What We've Learned From Studies in Germany, Final Report, September 1995. Research and Development Office, Maryland State Department of Education, Baltimore, MD 21201-2595. Tel: 410-767-0368.

World-Class Performance: Education Standards in Other Nations. New Standards, c/o the National Center on Education and the Economy, 700 11th St., NW, Suite 750, Washington, DC 20005. Tel: 202-783-3668.

INFORMATION ON WORKPLACE SKILLS AND SKILL STANDARDS

National Skill Standards Board, 1455 Pennsylvania Ave., NW, Suite 500, Washington, DC 20004. Tel: 202-347-2270.

Ready for What? What Employers Expect, What Higher Education Requires, What Students Need, a report from the West Virginia Business & Education Alliance. Contact Jim McKay at the West Virginia Education Fund, Tel: 304-342-7850.

Report to the Nation: Business Perspectives on Voluntary Skill Standards, a report on focus groups that reveal what business leaders think about skill standards. National Alliance of Business, 1201 New York Ave., NW, Washington, DC 20005. Tel: 202-289-2888.

Secretary's Commission on Achieving Necessary Skills (SCANS), U.S. Department of Labor. 200 Constitution Ave., NW, Washington, DC 20210. Tel: 800-788-SKILL.

Skill Standards: Benchmarks of Excellence, a look at how skill standards benefit business, workers and educators, and information on how to get involved. National Alliance of Business, 1201 New York Ave., NW, Washington, DC 20005. Tel: 202-289-2888.

IX APPENDIX

CRITERIA FOR JUDGING STANDARDS

The American Federation of Teachers' criteria for judging standards, summarized from *Setting Strong Standards,* are:

1. Standards must focus on academics.
2. Standards must be grounded in the core disciplines (English, math, etc.).
3. Standards must be specific enough to ensure the development of a common curriculum.
4. Standards must be manageable given the constraints of time.
5. Standards must be rigorous and world class.
6. Standards must include "performance standards."
7. Standards must define multiple levels of performance for students to strive for.
8. Standards must combine knowledge and skills, not pursue one at the expense of the other.
9. Standards must not dictate how the material should be taught.
10. Standards must be written clearly enough for all stakeholders to understand.

The Council for Basic Education (CBE) has assembled a document called Judging Standards In Education Reform. The following summarizes the major questions that the CBE suggests raising:

Criteria about Meaning

1. How well do the content standards reflect the essential elements, intrinsic importance, and practical significance of the subject matter? Do they identify the knowledge necessary for students' future education, personal lives, work, and civic and cultural activity?
2. How well do the content standards balance the mastery of important facts, ideas and key terms with the kinds of intellectual and practical skills needed in order to fully understand and practice the activities of the subject? Are they properly joined together?
3. How well do the content standards from different disciplines identify the overlapping features of related subjects? Do they provide valuable opportunities for integration of interdisciplinary approaches, or do they represent pointless duplication?
4. How well do the content standards permit comparisons with standards in other education systems in the world? How do the standards compare?

Criteria about Legitimacy

1. Do the content standards represent a broad consensus achieved through the participation of the public and appropriate authorities? Are the standards being implemented through a reasonable and ongoing process of design, development and refinement?
2. Does the process of developing or implementing the standards reflect voluntary adoption by the community?
3. Does the standards-based reform provide for the equitable treatment of all students? Are they being applied to all students? Will the related perfor-

mance standards and assessments be designed to challenge all students — including the disadvantaged and those who are already doing well — to do their best?

4. How do the standards affect student achievement in the system as a whole? Does the standards-based reform promise to raise student performance across the board?

5. How does the standards-based reform assign responsibility and provide for accountability measures for students, educators and the public?

Criteria about Practicality

1. How well do the content standards contribute to a coordinated system which also includes curricula, performance standards, assessments and teaching standards?

2. How well do the content standards reflect both relevant research and common sense regarding student development and learning?

3. How well do the content standards represent a reasonable evaluation of the time commitment required for students to attain them?

4. How well do the standards promote public understanding of what students are expected to learn? Do they encourage public support?

5. How well do the standards enable policymakers to make decisions and develop initiatives to improve the education system as a whole?

The Challenge of Change, published by the National Alliance of Business, outlines nine principles that should guide the standards-setting process. (Note: These criteria were developed for national rather than state standards.) They are:

1. All students should be given the opportunity to master challenging academic subject-matter calibrated against world-class education standards. National standards must be benchmarked against the highest standards in the world.

2. There must be one set of standards for all students.

3. Standards must have a common core of skills — from the basics in reading, writing and mathematics to solving problems, making decisions and using technology.

4. Standards must reflect "real world" requirements so that students leave school understanding what they must know to be ready for further learning, productive work and lives as contributing citizens.

5. Standards must be voluntary.

6. Standards must be dynamic. As requirements for success in education and at work evolve and broaden, so must academic standards. The standards-setting process must allow for regular updating.

7. Standards must include criteria against which performance is measured. Assessment is key to measuring performance and improving teaching and learning as well.

8. Business leaders must have a seat at the table. For a start, business can define what graduates should be expected to know and do on the job.

9. Standards and performance measures must be understood and supported by parents and the general public. Without parental and public support, reform cannot succeed.

X GLOSSARY OF TERMS

KEY TERMS IN STANDARDS-BASED EDUCATION REFORM

Assessments. Methods used to collect evidence of what a student knows or is able to do. Assessments may include tests as well as essays and other writing assignments, portfolios and demonstrations.

Content standards. Content standards specify the knowledge and skills that students are expected to achieve, outlining what students are expected to learn and teachers to teach.

Curriculum. A description of what students are expected to actually study in the relevant course in order to achieve the objectives described in the content standards.

Opportunity to learn standards. Descriptions of the nature and quality of the educational experiences and resources that educators should make available to students to enable them to meet high academic standards.

Performance standards. Performance standards describe how students will demonstrate their skills and knowledge (such as an essay, scientific experiment, project or exam) as well as the quality or level of student performance that is needed in order to meet the content standards. Performance standards define "how good is good enough" to meet the standard.

Skill standards. Skill standards identify skills needed by the American workforce and the level at which such skills must be performed for workers to be competitive with foreign rivals.

Note: The above definitions are adapted or taken verbatim from materials published by the following sources: the National Education Goals Panel, the U.S. Departments of Labor and Education, and the Council for Basic Education.